

BLIND WORKERS IN INDUSTRY

K. G. Fenelon

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BLIND WORKERS IN INDUSTRY



By

Dr. K. G. FENELON

(General Secretary, Institution of Production
Engineers; Formerly Head of the Department
of Industrial Administration, Faculty of
Technology, Manchester University.)

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PREFACE

THIS survey has been undertaken solely with the object of obtaining facts and information about the employment of Blind Workers in Industry, and not to prove any particular thesis or support any preconceived opinions. It is issued on the author's own responsibility and not on behalf of any interest or organization.

The author gratefully acknowledges the help he has received in his enquiries from numerous firms and individuals.

K. G. F.

41 ARDEN ROAD,
LONDON, N.3

Blind Workers in Industry

By K. G. FENELON. M.A., Ph.D.

Introduction.—Blind persons, in large numbers have entered industry during the past year or two and have proved themselves fully capable of undertaking a wide variety of jobs in our war factories. Previously it had been too readily assumed that they were only suited for occupations such as basket-making, boot-repairing, massage, mattress-making, or telephone exchange operation, and that in general they required sheltered conditions of work, being unable to hold their own in normal competition with sighted workers.

In the days of cottage industries the difficulties were much less and it was often possible for blind workers to undertake normal occupations as we find described, for example, in the following passage from Gilbert White's *Natural History and Antiquities of Selbourne* (1785): "At first a person would find it no easy matter to divest a rush of its peel or rind so as to leave one regular, narrow, even rib from top to bottom that may support the pith; but this, like other feats, soon becomes familiar even to children; and we have seen an old woman, stone-blind, performing this business with great dispatch, and seldom failing to strip them with the nicest regularity."

Specially gifted blind individuals have achieved success in the most unlikely occupations, but these are the obvious exceptions. Among such may be instanced John Metcalf, commonly known as "Blind Jack of Knaresborough," who though blind from the age of six, distinguished himself as an athlete, walked from Knaresborough to London and back, rode several races successfully, fought as a soldier at Falkirk and Culloden, and became famed as a roadmaker, having built some 180 miles of excellent turnpike roads.

The interesting fact about recent experiments in the employment of blind persons is that average individuals are able to find a place in factory production despite the handicap of blindness.

Object and Scope of Survey.—The aim of the investigation has been to obtain information from firms who have had actual experience of the employment of blind persons in their factories, and the information contained in this pamphlet is based on answers to a questionnaire, visits to factories, and on discussions and correspondence with factory managers. Workers engaged in sheltered occupations in workshops or institutions for the blind were excluded from the survey, as the aim was to obtain informa-

tion about blind workers employed under conditions similar to those of sighted operatives. It was possible to obtain detailed information regarding 215 blind persons employed by 50 different firms; a blind person being defined for the purpose of the investigation as a person who was registered as such with a blind society. Blind persons, it was found, were being employed in a wide range of industries and in many different localities. The industries included, among others, general engineering, electrical engineering, aircraft, aero engine, sheet-metal, cycle, radio, automobile, electric lamp manufacture, gauge-making, metal ware, wood-working, soap manufacture, tube-making, tobacco and the munition industries.

One of the 50 firms employs six blind out-workers sorting foundry nails, sprigs and small pieces of scrap metal, but the other 49 employ their blind workers in the factories. Of the 209 blind workers engaged in factory employments, 145 are males and 64 females. The totally blind number 128 (85 males, 43 females), and the partially blind 81 (60 males and 21 females). It was possible to obtain accurately the age of 153 of these workers, and the distribution worked out as below :—

Under 18	...	...	3
18 and under 21	...	...	3
21 " "	30	...	28
30 " "	40	...	38
40 " "	50	...	44
50 " "	60	...	33
60 " "	70	...	4

The majority of the firms employed only a few blind workers each; the average working out at between 4 and 5 though six firms employed over 10 each.

9 firms employed 1 blind worker each.			
10	"	2	" workers "
9	"	3	" " "
7	"	4	" " "
3	"	4	" " "
3	"	5	" " "
1	"	7	" " "
1	"	8	" " "
1	"	9	" " "
1	"	11	" " "
3	"	12	" " "
1	"	13	" " "
1	"	14	" " "

The range of occupations represented was fairly wide and the following were the most important from the point of view of numbers employed:—

Inspection, gauging and viewing (including plain limit gauges, screw plug and Wickman Caliper Thread Gauges) 68 persons; Filing, trimming and frazing 27 persons; Assembling work 24 persons; De-burring 15 persons; sorting rivets, nuts and bolts 13 persons; Date-coding 12 persons; wire-cutting and wiring 10 persons; Machine operations (including capstan operation) 10 persons.

Among the other occupations recorded were hand-operated press-work, labouring, luting plugs, polishing, reaming, fitting oxygen valves, tubing, press tool setting, store-keeping, salvage, stacking and loading wood boxes, dismantling air-craft guns, removing stems from tobacco leaf, paper wrapping and bench work.

Training of blind workers.—It was found that 104 workers were trained by the firms themselves on the factory premises, 53 were trained by Institutes for the blind, 2 by an education committee, 8 in their own homes, while 48 received no specific training but obtained their experience on the job. A full training scheme is being developed by an electrical engineering firm which, at present, employs a blind man in charge of their A.R.P. control room and five others on inspection to fine limits with “go” and “not go” gauges, plug gauging and ring and thread gauging. This firm has carried out a special survey of jobs suitable for blind operators and intends to absorb as many blind workers as possible.

The introduction and training of blind workers does not appear to have caused difficulties with other operatives in any of the factories. “At the time we engaged our men,” states one firm, “the job was being done by sighted women who willingly stood aside for them and actually helped in the tuition. They have remained constantly helpful.” Another comment received was that “blind workers can be placed in many positions in air-craft factories if they are given the opportunities and if an interest is taken in them.” War-time production requirements however, according to another firm involve difficulties in providing training facilities as their supervisors can only find the time to train blind persons for the simplest jobs. This firm employs one blind man on various salvage jobs and four women on simple wire cutting operations. All five are stated to be keen and steady workers.

A Birmingham firm which employed six blind women on gauging and viewing found that they needed a longer training period than sighted persons and complained that they liked a change of job as they got very bored carrying out the same

operation day after day. "Our reason against employing blind workers," they said, "is that they appear to like a variety of jobs, but the number of jobs they can do is limited and the employment of blind persons raises the costs of a department because of extra servicing required."

The employment of blind workers on an extensive scale in ordinary factories is of comparatively recent date and has been mainly initiated during the past 12 months or so. Only one of the fifty firms recorded that they had employed blind persons for as long a period as two years, whereas 43 firms had engaged their blind workers since the autumn of 1942.

Efficiencies of blind workers.—In the case of 125 blind workers it was definitely stated that their production was fully up to that of sighted workers and some of them were definitely stated to exceed normal production. A firm employing 13 blind workers gauging screw threads on aircraft bolts by Wickman Caliper Thread Gauges for example, reported that they gauged the bolts to a greater degree of accuracy than do sighted workers; this greater accuracy being due, in the firm's opinion, to the fact that they have no distractions. In an aero engine factory, it was found that the blind operatives concentrate very closely on their work and are rarely away from their benches or machines. Several other firms stated that they had found blind persons very suitable for gauge inspection and that they were therefore arranging to employ additional blind men.

A particularly interesting comment came from a large engineering works. "It has been found that the four men concerned have provided a very suitable team for the particular work on which they are employed and their output has been on the whole, considerably in excess of the girls originally doing this work. I personally put this down to the fact that the men can carry on the rather monotonous work and still converse with each other, whereas sighted workers naturally tend to look up and observe the reaction of their remarks on their listeners and consequently cease working for that period."

A London firm which at first were very doubtful about trying the experiment of employing blind workers, stated that it was very pleased that it had done so because in every case the blind persons had proved to be very good and cheerful workers. A soap works found the blind to be very conscientious workers and equal to sighted workers on suitably chosen jobs.

In addition to the 125 workers described as capable of normal output, there were a further 23 who were stated to be fully up to standard but with qualifications such as that the work was "not normally a man's job," that they required "additional supervision" or that the work had to be subsequently examined by

sighted inspectors for defects in material. Where blind operators are engaged on capstans it was stated by one firm that scrap is occasionally caused by the tools shifting, a fact of which a blind operator would be unaware.

Fifty workers were stated to fall short of the production obtained by fully sighted workers, but of these, 12 were "practically" or "almost" up to ordinary standard and 5 were "slightly below." The lowest standard of efficiency recorded was among workers engaged in securing small tubes to spars by wires who were reported to attain only 40% of standard; others in the same factory engaged in rivet sorting were 60% of normal. Three workers engaged in chain making were 90% of standard, while in an engineering factory employing 3 workers their production was approximately 75% of ordinary production. A worker engaged in wrapping and boxing radio valves was also stated to reach only 75% of that attained by sighted persons.

Accidents and accident proneness.—All the firms stated that blind workers were no more liable to accidents at the bench or machine than other workers. Two firms qualified their statement with the words, "after a short period" but this may be paralleled by a similar "settling-in" period during which the accident rate is higher, which is general to all new workers—sighted or blind. Only one other firm added a qualification, namely, "with reasonable precautions." The evidence is thus conclusive that no greater accident proneness exists among blind workers. As a group, they are naturally careful and do not take unnecessary risks. In this connection similar evidence has come recently from the United States through the *American National Society for the Blind*. "Experience shows that blind workers exercise a higher degree of care than their sighted associates and up to the present time there are no records of compensable accidents."

As regards moving about the factories, 25 firms state that their blind employees have not proved more liable to accidents than sighted workers and 16 further firms state that there are no accidents because their blind operatives are always accompanied by a sighted worker when they have occasion to move about. Three firms, however, state that the liability to accident is greater while another thinks there is an element of danger. A firm employing 14 blind workers frazing metal aircraft components and with experience extending over 10 months, found that there is no greater liability to accidents after the first few weeks either at the bench or moving about the factory when the blind operatives have become accustomed to the work and tools. "Visits to the surgery for minor injuries compare very favourably with the records of sighted persons. Twenty per cent. of the total have

not visited the surgery during the whole period of the employment."

Some of the firms will not employ blind workers on machines, preferring to keep them on less hazardous jobs, but a firm which employs three totally blind workers as capstan operators reports that "present indications are that with reasonable safety precautions, blind employees are not more liable to accidents than other workers."

Some difficulties appear to occur where the work involves the use of the finger tips, e.g., in de-burring, as the workers feel that it might interfere with their ability to read Braille. One firm which trained six workers, said that three left because it was almost impossible to overcome their reluctance on this point. In another firm the difficulty was met by issuing one glove to each person. In a sheet metal firm, the author was informed by a worker who was a very keen Braille reader that he used a different part of his finger for de-burring to that which he used for reading. Another difficulty is the risk of small cuts from splinters off the wooden benches, but this was overcome in one firm by covering the bench tops with metal.

Attitude of other workers.—The general attitude of sighted workers to the blind employees is invariably helpful and there is always someone ready and willing to assist their blind comrades in moving about. The comments of the firms on this point are "very understanding," "full of admiration," "kind," "friendly," "excellent," "no opposition." One report, for example, says that "the general feeling is that firms should give blind persons an opportunity and they are helpful to those we have employed here," while a London firm writes, "In particular, we have noticed the many small courtesies and assistance given in the canteen, etc."

Quite typical of the general attitude of sighted workers is the following—"Very helpful. They seem to try to do all they can to help them clock-in or find their way about the works. Blind people usually seem to go home with one or more of our employees assisting them, and on the whole the attitude of our staff is complete understanding and helpfulness." In one factory the blind workers wear white armlets and in another a cap of different colour so that they can be immediately recognised and help proffered when required. In a third, a notice is displayed in those shops where blind persons are working.

In a report from a Bolton firm employing eight blind workers it is emphasised that every assistance is given and the blind people treated with sympathy which is not over-displayed. This is an important point as blind workers prefer to do what they can

for themselves without unnecessary assistance. They do not welcome being made any less independent than they actually are.

Occasionally blind people may be over-sensitive and one firm, for example, reported that its blind girls were apt to think that the other girls were talking about them and some small disputes had to be smoothed over. A special case cited by another firm was that of a young woman partially blind, stone deaf and with some difficulty in articulation of speech. She was reported to be a very good and willing worker but most sensitive to approach to the point of having a slight "persecution complex"; but this the firm attributed to her deafness rather than to blindness.

A remarkable example of triumph over apparently total disability is that of a worker blind, deaf and dumb as a result of a fall from a horse who was interviewed by the author, though not included in this investigation as he is employed at an Institute for the Blind. This man is always cheerful and very efficient at his job of boot repairing. He converses by means of the deaf and dumb alphabet, though being blind, he has to have the words spelt out on his own fingers. He is an expert on the form of horses and is in great demand for "tips on the 2.30."

Travel to and from work.—In nearly every factory, the blind workers are conducted to and from the bus stop by fellow employees or sometimes by partially blind comrades. Some are conducted all the way home by relatives or workers living in the same district. One man is led by a dog which curls up under the bench during working hours. The general experience is that there is no need to make special arrangements for conducting blind workers in and out of the factory as sighted workers are always willing to assist.

Eleven of the firms stated that they allow their blind workers to leave a few minutes before the usual time to avoid buffeting by the crowds or to get to the bus in good time. The usual allowance is anything up to five minutes, though two firms allow ten minutes and one as much as a quarter of an hour. There is not the same difficulty about arriving for work as in getting home and only one firm has found it desirable to allow them to arrive five minutes late, though some privileges may be given as regards clocking-on routine. In another firm, the blind people are brought up and down in the work's lift so that they need not negotiate the staircase with the crowds.

Punctuality and absenteeism.—It was found that 38 firms employed blind workers who lived near the factory or within three miles radius. Standards of punctuality attained by these workers are very high and there were no complaints at all of bad time-keeping. Ten firms reported punctuality as "excellent"

or "exemplary," two as "very good indeed," six as "very good" and 20 as "good."

Among blind workers living three or more miles from the factory, the standard of punctuality attained was not quite so good, though still highly satisfactory. Of the 33 firms concerned, two reported "fairly good," 15 "good," seven "very good," and nine "excellent" or "exemplary."

A Burnley firm stated that none of its five blind employees had been late since starting some eight months previously and a London firm records that all its blind employees are good time-keepers and most conscientious.

Blind workers have proved very regular in their attendance at work and are not more frequently absent from work than other employees. Only one of the 209 blind factory workers covered in the survey was reported to have an absenteeism rate above the average of sighted employees and that was said to be only slightly in excess of average. One firm found, rather unexpectedly, that one or two of its blind workers were unwilling to do nightshift, but this is possibly explainable by domestic circumstances.

Several of the firms are enthusiastic about the attendance records of the blind people. Thus a firm in the Birmingham area employing 14 blind workers states: "Their time-keeping is exceptional. They average 100% almost every week." Another firm says that their five blind operatives are less frequently absent than sighted workers and none have so far been absent except through certified illness. A Liverpool firm employing three males on filing forgings, blending rough surfaces, fettling and planishing, and one female on inspection, explains their good attendance records on the grounds that "they are very conscientious and grateful for the chance they have."

An electrical engineering firm in the London area says that the records of its six blind workers are better than those of sighted people and that their production is fully up to that of sighted workers and sometimes better.

Aids to output.—In many jobs, no special layouts or fixtures are required to enable blind workers to undertake simple factory jobs. Sixteen of the 49 firms have reported that they provide no special aids and a further five firms that such aids are unnecessary in the particular work which is being done. These include various forms of gauging or inspection which it is possible to operate by touch: ordinary equipment being used, such as plain limit gauges, screw plug and Wickman caliper thread gauges. Other occupations undertaken by blind workers without any special aids included simple engineering processes such as de-burring, reaming,

drilling, filing, planishing or luting, dismantling aircraft guns for inspection, date coding, creasing shampoo envelopes, fitting oxygen valves, stacking soap boxes, trimming bakelite mouldings, or sorting salvaged rivets. A firm engaged on electrical assembling states that the blind employees work on the assembly belt with sighted workers.

Twenty-eight of the firms provide special aids, these including "special layouts of components," "additional supervision," "specially marked gauges for identification by touch," "physical locating devices" or "gauges laid out as required" or "work placed on bench by supervisor." The comments of the firms are especially interesting under this head as efficiency can be greatly increased by attention to the specific needs of the blind workers and the particular characteristics of the job.

One firm, for example, makes a special point of keeping gangways clear round the benches and has arranged the bins into which finished work is placed rather higher than normally.

Hand presses and power presses in another firm have been slightly altered. Feeding channels have been attached and the distance between the drill and the ledge when not being used does not exceed $\frac{1}{2}$ inch. A chain-making firm draws special attention to the point that whereas a sighted person feeds himself with the components of the parts he is assembling, the blind person has to be fed with the components at the machine, as he is unable to find them unaided. Extra attention is devoted by an aircraft firm by the setters on capstan machines to ensure that scrap arising from shifting tools is reduced to a minimum. In an engineering factory, specially marked gauges for identification by touch are provided, while in some other factories the blind workers arrange their own trays containing the work so that they can readily find the parts or tools as required. Physical locating devices described, for example, by a firm whose blind operatives are engaged in wire-cutting, are a valuable aid and have long been utilised in Workshops for the Blind.

"Special fixtures and tools are designed and made whenever necessary to assist production. We provide simple jigs that can be operated by touch."

"The two men engaged on inspection are using gauges which can be operated by touch. These gauges are not specially made. The way in which we deal with the matter is to choose those operations in our inspection department which are suitable for blind employees."

From the experience of firms which have provided special layouts, and the like, it is clear that these greatly help to increase efficiency and they also prevent frustration through hold-up of the

work. Several firms reported that blind workers are apt to get a little irritated when they are so frustrated. It is possible that the experience gained in facilitating the work of blind operatives might prove valuable in certain cases in leading to improved layouts for sighted workers.

Some of the firms which have found additional supervision or special servicing necessary, point out that this may raise costs. An engineering firm holds that there are definite limitations as to the type of work which can be handled by blind employees and in their case the jobs are confined to de-burring, reaming and inspection. A gauge manufacturing company think that it is quite probable that blind people would be of greater service in a mass-producing or repetition factory. "The four employed in this department rarely have more than 20 or 30 of an article to burr." A firm employing 12 blind persons says that while every satisfaction has been given by their blind employees, whom they have always found willing and anxious to do a good job of work, they can only be utilised to the fullest advantage on routine work. A radio firm find blind workers eminently suitable providing they have a long running assembly job.

An adverse comment comes from a London firm: "The one difficulty appears to be their mental attitude to work. Apparently most of these people seem to get approximately 50s. a week from charity and they therefore seem to feel that when they earn £3 or £3 10s. 0d. a week, they are working for 10s. or £1 a week. It seems that during the training period, some adjustment should be made to get over this difficulty, say a sliding scale reduction of their charity grant."

Outworkers.—One of the 50 firms was found to employ six blind persons in their own homes on a part-time basis, sorting foundry nails, sprigs and small pieces of scrap metal which come from the moulds after the castings are made. These nails, sprigs and scrap are all mixed up with sand off the moulds. The firm sifts the sand and bags the nails and scrap and deliver to the homes of the blind persons and then collect when the sorting is completed. The work was formerly done by boys in the foundry but as it is a very monotonous job, the boys were very unwilling to carry on with it and the sorting was not good. The blind people have been found to be quite efficient and satisfactory on this particular work.

Wage Policies.—The wage policy adopted by 31 of the 49 firms is that of paying the standard wage for the job just as is paid to sighted workers. One pays the full rate plus bonus, another the rate for semi-skilled labour, while yet another pays a consolidated weekly wage. Two firms pay rates applicable to trainee labour dependent on ability. Some relaxations are given

to blind workers by certain firms thus one pays a man the woman's rate for the job plus 15s. a week standing wage; another grants a relaxed piece-work scale, while a third gives a special training allowance during the training period.

An aero engine factory started the men at 75s. for 47 hours and found that the men who were engaged on inspection were able to reach 90s. 8d. for 47 hours by increases to their merit rate. The normal working week is 54 hours and the work would ordinarily be carried out by female viewers for 53s. 3d. for 47 hours.

A man employed on hand assembly and simple machine operations where the work is jiggled up is given the minimum tin box rates of pay as most of his work is of the type which can be done by a junior female operator.

Three women workers in Leeds engaged on light bench assemblies "are paid at the standard rate of wages which to-day is 50s. for 47 hours plus 2s. 6d. good time-keeping bonus weekly."

An electrical engineering firm pays their blind workers the highest wage for their occupation on the same basis as sighted operators, irrespective of whether the output is equal, because they consider this to be a necessary part of their rehabilitation.

Three male workers in the Greater London area engaged in general assembly work on wooden cases were started at 30s. a week and after a month put on an hourly basis, the minimum rate being 1s. an hour. The highest rate being earned was 1s. 3½d. an hour but the firm thought this might be increased as they had only employed the men for nine months. In a cigarette lighter factory the men are paid 1s. 3d. an hour on assembly operations plus an output bonus. A Birmingham firm employing seven blind workers gives a special allowance of 7½% on piece work rates and a further allowance of 40 minutes per day paid time to permit them to cease work early and to get to and from their jobs to the canteen, etc.

Fourteen workers in an aircraft component factory are given a quarter hour's allowance each day but otherwise their piece rate and bonuses are the same as a sighted person's and their earnings compare favourably.

Post-war employment.—In reply to a question as to whether the firms considered their employment of blind workers merely a war-time expedient, thirty firms replied that they did not think so and several were emphatic on the possibility of employing blind workers in peace-time industry. Seven, however, considered it only a war-time expedient; four were unable to reply since they were engaged only on munitions or other war-time work

while the remaining eight firms were unable to say one way or the other.

Conclusion.—Blind workers to-day can be found engaged in an astonishingly large variety of occupations ranging from assembly work, inspection, gauging, storekeeping, wire-cutting and packing, to the operation of machine tools or the carrying out of varied engineering operations such as de-burring, trimming, filing, fettling or reaming. They have been particularly successful in those kinds of work where delicacy of touch compensates for inability to see and in some jobs of this type their production is actually higher than that of sighted workers. It is therefore important in placing blind workers that the jobs selected for them should be suited to their particular abilities. This point was well brought out by a firm which employed blind persons on capstan operation, viewing, polishing, filing and drilling. The capstan operators were mostly employed on tapping, the viewing work was mainly that which requires fixed gauges only, and similarly with polishing and filing, particular jobs were picked out as suitable for blind workers.

A difficulty with some blind workers is that they are apt to become a little irritated when frustrated by any hold-up of material. It is particularly important in occupations such as assembly, gauging, inspection and the like to take care that such frustrations do not occur. In general, blind workers are keen and industrious and grateful for the opportunity given them to obtain work in ordinary factories. Their concentration on the job in hand is good, possibly because they are less liable to distraction. One cheerful blind worker was asked by a sighted worker how it was that he could do more than the others, and he replied, "Well you see it's this way, mate, you only work while the boss is looking! I don't know when he is looking, so I have to work all the time."

Some of the firms have given very high praise to their blind workers, as the following quotation from a letter regarding a blind employee of a sheet metal firm will illustrate: "For the first few weeks he was placed on a Burring Bench to get the touch of various metals. He then asked if he could be placed on a job of more important work. He was placed on Hand Drilling and Assembly for the strutt which is used to reinforce part of the aeroplane. We were surprised at the speed at which this man picked up this job. It was sent to Inspection and to our amazement was 100% perfect. He travels a distance of 8 or 9 miles by two buses but he has never been late or absent and carries out his duty in a very efficient manner. He has now been placed in the category of a semi-skilled fitter and is earning bonus equal to that of any other man doing the same job."

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By the same Author

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